

## (57) Abstract

A method and an apparatus for growing a thin film onto a substrate by the ALD process. The apparatus comprises a reaction chamber into which the substrate can be disposed; a plurality of inlet channels communicating with said reaction chamber, said inlet channels  
5 being suited for feeding the reactants employed in a thin-film growth process in the form of vapour-phase pulses into said reaction chamber; at least one outlet channel communicating with said reaction chamber, said outlet channel being suited for the outflow of reaction products and excess amounts of reactants from said reaction space; and a pre-reaction  
10 chamber arranged immediately upstream of the reaction chamber, said pre-reaction chamber forming a first reaction zone, in which the reactants of successive vapour-phase pulses can be reacted with each other in the vapour phase to form a solid product, whereas said reaction chamber forming a second reaction zone can be operated under conditions conducive to ALD growth of a thin film.